2017

Psychological functioning predicts competence development for postgraduate students of professional psychology

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Publication Details

Humphreys, L., Crino, R. & Wilson, I. (2017). Psychological functioning predicts competence development for postgraduate students of professional psychology. Training and Education in Professional Psychology, 11 (1), 49-56.

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Disciplines
Medicine and Health Sciences | Social and Behavioral Sciences

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Abstract

This study sought to examine the psychological functioning of students enrolled in postgraduate programmes of clinical and forensic psychology in an Australian university, and the degree to which psychological functioning predicted competence attainment while participating in an extended clinical placement. Results revealed that as a group students reported psychological functioning within normal ranges, with levels of conscientiousness found to positively predict, and levels of depression found to negatively predict the development of the necessary competencies. However, a subgroup of 27% of students reported experiencing clinical levels of psychological distress on at least one measure during the placement. At the completion of the placement, when compared to the performance of peers, the students who reported experiencing clinical levels of psychological distress demonstrated significantly poorer performance on a psychometrically sound measure of competence attainment.

iii. Key words: Clinical Psychology, Competence, Forensic Psychology, Post-graduate students, Psychological functioning

Postgraduate degrees of professional psychology emphasize the acquisition of a range of academic and professional competencies. Entry to these programmes is highly competitive, but little is known about the factors that encourage or impede the development of these competencies. Of the student variables that may predict competence development, intellectual ability and past academic achievement are often considered likely indicators of success (Kuncel, Hezlett & Ones, 2001). However, some studies suggest that this relationship may be weaker than expected, particularly as selection procedures at the postgraduate level have been noted to result in a reduced range of intellectual ability towards the higher end of the distribution scale (Furnham, Chhamorro-Premuzic & McDougall, 2002). As such, the predictive validity of these intellectual and academic factors may be less significant than previously thought, warranting exploration of other non-intellective factors in the prediction of competence attainment.

Within the personality domain, meta-analyses have found that conscientiousness is the most consistent predictor of performance across a wide variety occupational (Barrick & Mount, 1991: Barrick, Mount & Judge, 2001) and educational settings (Chamorro-Premuzic & Furnham, 2003; Poropat, 2009). Within the field of medical education specifically, significant efforts have been expended in the identification of predictors of success (Doherty & Nugent, 2011; Haight, Chibnall, Schindler & Slavin, 2012), with Lievens, Ones & Dilchert (2009) suggesting that conscientiousness, more than any other personality factor, is increasingly predictive of successful performance across the duration of medical training.

The impact of mood states on performance has also been explored, with impact on academic performance proposed via reduced concentration and working memory, ruminative thinking and tendency to worry (Owens, Stevenson, Hadwin, & Norgate, 2012), or via increased rates of co-morbid anxiety and/or substance abuse disorders (Peluso, Carlton & Asmundson, 2011). Studies have also explored the relationship between depression and medical student performance in clinical settings, and have found negative associations between

depression and examination performance and overall clinical clerkship evaluations (Haight, et al., 2012), reduced empathy for patients (Thomas, Dyrbye, Huntington, Lawson, Novotny & Shanafelt, 2007), and increased cynicism leading to unwillingness to care for chronically ill or terminal patients (Dyrbye, Thomas, & Shanafelt, 2005).

Studies exploring the relationship between anxiety and performance have produced mixed results, with researchers suggesting the operation of moderators in the anxiety/performance relationship (Owens, et al., 2012). A meta-analysis conducted by Seipp (1991) supported significant negative relationships between test anxiety and performance, and general anxiety and performance, with test anxiety a better predictor of academic performance than general anxiety. The study concluded that while the relationship between anxiety and performance was negative, its relationship was weaker than often postulated.

Exploration of the relationship between stress and performance has also produced mixed results, with authors suggesting individual coping strategies as mediators in the stress/performance relationship (Akgun & Ciarrochi, 2003). Other studies have focussed on the impact of "burnout" on academic and clinical performance, however, the nature of this relationship remains unclear, and again suggests the potential operation of mediating variables (Mosley, Perrin, Neral, Dubbert, Grothues & Pinto, 1994).

The literature regarding the psychological functioning of postgraduate psychology students is sparse (El-Ghoroury, Galper, Sawaqdeh & Bufka, 2012). Studies have found that while as a group, postgraduate psychology students demonstrate psychological functioning within the normal range (Brooks, Holttum & Lavender, 2002; Kuyken, Peters, Power & Lavender, 1998), there exists a subgroup that report significant levels of psychological distress (Brooks, et al, 2002; Cushway, 1992; Kumary & Baker, 2008; Peluso, Carleton & Asmundson, 2011) which endures or even increases over enrolment (Kuyken, Peters, Power, Lavender & Rabe-Hesketh; 2000). However, these studies did not examine the relationship between psychological functioning and acquisition of clinical competencies. As a consequence, this

study was designed to explore the relationship between the psychological functioning of postgraduate professional psychology students and ability to acquire the necessary competencies. Here "psychological functioning" was taken to involve stable personality factors, changeable mood states e.g. levels of depression, anxiety and stress, and the individual's use of coping strategies.

The study was granted ethics approval by the UWS Human Research Ethics Committee (Protocol Number HREC H6214) and adhered to the ethical standards of the National Statement on Ethical Conduct in Research Involving Humans (2007).

Method

Procedure

Participants were enrolled in postgraduate degrees of Clinical or Forensic psychology. Each degree was of two years or 4 semester duration, and required successful completion of coursework, dissertation and 1000 hours of clinical placements. The first placement, and that of relevance to the current study, was completed in a University-based clinic under the supervision of academic staff. This placement commenced during the second semester of study, and students participated one day per week for the duration of the placement. Students completed at least one semester within the clinic, and were required to demonstrate foundational competencies before discontinuation of the clinic placement and progression to external placements was permitted. Most students, however, elected to participate in a subsequent semester of placement within the clinic while also participating in concurrent externally based placements.

Prior to the commencement of the study the principle researcher, also primary clinical supervisor, met with students to describe the study. Students were provided with an information sheet and instructions regarding participation, a consent form and questionnaires.

Given that students existed in an unequal relationship with the principle researcher, they were advised not to discuss their decision to participate in the study with the principal researcher. Instead, they were requested to return the consent form and questionnaires within the sealed package, leaving the principal researcher unaware of individual decisions regarding study participation. Participants were required to complete questionnaires on three occasions across the clinical placement: at commencement, mid-way through, and completion. They were informed that all sealed envelopes collected during assessment periods would remain sealed until placement completion, and that they could withdraw consent at any time until completion of their placement by retrieval of unopened envelopes. Student attainment of competence was assessed mid-way and at completion of the placement, using a psychometrically sound competence assessment tool, and review of all written and recorded responses was conducted by the principle researcher subsequent to student progression from the placement period in question, and following cessation of the supervisory relationship.

Participants

Sixty two students commenced the placement. Three did not consent to participate, providing data for 59 students at initial data collection (Clinical, *n* = 48, Forensic *n* = 11, female = 46, male = 13, mean age = 27.76 years, range 22-51). By the second data collection period two students had withdrawn from the programme, and 4 submitted incomplete questionnaires, leaving data available for 53 students (Clinical, *n* = 42, Forensic *n* = 11, female = 42, male = 11, mean age = 27.44 years, range 22-44). On successful completion of the mid-placement assessment, 16 students discontinued in order to commence external placements, leaving data available for 37 students for the final assessment period (Clinical, *n* = 36, Forensic *n* = 1, female = 32, male = 5, mean age = 27.30 years, range 22-44).

Measures

Clinical Skills Assessment Tool (CSAT). The CSAT (Humphreys, Crino, Wilson & Hannan, 2015) is an assessment tool designed to assess performance of the competencies taught within, and aligned to the learning objectives of, postgraduate degrees of Clinical and Forensic psychology at a specific Australian university. The CSAT (see supplemental material) assesses fourteen competencies via evaluation of video excerpts and case file extracts of clinical work conducted by students while on placement. Each competency is graded on a 3 (1-3) point scale, and total scores range from 14-42. Preliminary analysis indicates that the CSAT demonstrates adequate face and content validity, convergent and divergent validity, test-retest and inter-rater reliability and good internal consistency (Humphreys, et al., 2015).

The Depression Anxiety and Stress Scale (DASS) The Depression Anxiety and Stress Scale 42 Item (DASS-42), (Lovibond & Lovibond, 1995) is a 42-item self-report questionnaire which measures depression, anxiety and tension/stress. Respondents indicate the degree to which an item related to them over the previous week, on a 4 point scale, with total scores ranging from 0 - 42. The authors report that each of the DASS scales demonstrates acceptable internal consistency. In addition, the DASS demonstrates high convergent validity with other measures of anxiety and depression, with similar correlations reported in both community and clinical samples (Brown, Chorpita, Korotitsch, & Barlow, 1997; Crawford & Henry, 2003). A range of studies have also supported the three factor structure identified by the authors (Brown et al, 1997; Crawford & Henry, 2003).

The NEO-PI-R. The revised NEO Personality Inventory (NEO PI-R, Costa & McCrae, 1992) is a 240-item, psychometrically sound, self-report questionnaire designed to assess the "Big Five" personality factors. The authors report acceptable internal consistency for each of the domain scales, as well as acceptable domain test-retest reliability coefficients. Construct validity has been demonstrated by a number of studies (Conard, 2006; McCrae & Costa, 1986), while convergent validity has been documented with high correlations between the various

facets such as the Neuroticism and Extraversion factors and Neuroticism and Extraversion scales in other tests (Eysenck, 1968; Spielberger, 1986).

The Coping Styles Questionnaire (CSQ) The Coping Styles Questionnaire (CSQ), (Roger, Jarvis & Najarian, 1993) is a 60 item self-report questionnaire designed to assess primary coping styles. The questionnaire assesses four coping styles: rational (or task-focussed), emotional, avoidant and detached, with rational and detached coping considered adaptive coping styles, and emotional and avoidant coping considered maladaptive coping styles. Respondents are invited to indicate the frequency with which they employ each strategy on a 4 point (0-3) scale. Scores are calculated by summing the scores for each of the items endorsed across each of the scales. The authors report sound internal consistencies for each scale, acceptable test retest reliability over periods of 4-12 weeks and factor analysis supporting the four factors of the test (Roger, et al., 1993).

Statistical Analyses

Means and standard deviations were calculated for the DASS, NEO-PI-R and CSQ for each assessment occasion. Independent sample *t* tests were conducted to compare these results with normal and special population samples as available, and Bonferroni adjustments with alphas of .05/3 = 0.016 were employed to reduce the possibility of type 1 error. Multiple regression analyses were employed to examine the relationship between psychological functioning and student attainment of competence. Stevens' (2002) recommendation regarding ratio of cases to independent variables was accepted, and given the sample size of students who completed the final placement review (n = 43), two predictor variables were selected for use within multiple regression analyses. These variables were selected following a review of the literature which points to validity of conscientiousness, positively, and mood states, negatively as consistent predictors of academic functioning and clinical performance. These were scores on the DASS-Depression scale and the NEO-PI-R Conscientiousness scale. Finally,

independent samples t-tests were conducted to examine whether membership to the group that endorsed responses within the clinical or extreme range on any psychological measure on any occasion indicated poorer performance on the CSAT. The results of statistical analyses are included in tables as online supplemental materials.

Results

Descriptive statistics

The means and standard deviations obtained on the DASS, NEO-PI-R and CSQ are included in Table 1.

(insert Table 1 here)

For results on the DASS, outliers were adjusted to a score one point higher than the next most extreme score (Tabachnick & Fidell, 2007). Independent sample *t* tests were conducted to compare the results obtained by this sample on each of the three assessment occasions, and those obtained by the normal population sample reported by Crawford, Cayley, Lovibond, Wilson & Hartley (2011). There were no significant differences on the DASS-Depression or DASS-Anxiety scales found between our sample and the normal population sample on any of the three assessment occasions. However, on the DASS-Stress scale the current sample reported mean scores significantly higher than the normal population sample, on the first and second, but not third assessment occasion, Time One t (df = 68.78) = 2.96, p = 0.0042 and Time Two t (df = 67.99) = 2.60, p = 0.0113. Given these findings, the DASS-S scale results from the current sample were compared to first year university samples (Lovibond & Lovibond, 1995). Independent sample *t* tests were conducted. No significant differences were found between the groups on the mean scores for the Stress scale. To explore the possibility of a significantly distressed subgroup of students, student scores on each of the scales were also classified according to the severity cut-off score criteria established by the authors. Results are

presented in Table 2, and suggest a subgroup of students experiencing clinical levels of depression, anxiety or stress on each of the assessment occasions.

(insert Table 2 here)

Coping Styles Questionnaire (CSQ). One outlier was adjusted in the Time Three data on the Emotional Coping subscale, and was reduced to have a score one point higher than the next most extreme score (Tabachnick & Fidell, 2007). Independent sample *t* tests were conducted to examine gender differences in the use of coping strategies within the current sample. Unlike other studies, where significant gender differences have been found, no significant differences were found between male and female use of coping strategies on any of the four dimensions of Rational, Detached, Emotional or Avoidant Coping on any of the three assessment occasions. These results suggest that males and females in the current sample employed coping strategies to the same degree.

However, to facilitate comparison to other samples stratified by gender, in particular first year psychology students, the responses provided by this sample were compared by gender to Roger et al, (1993) who reported means and standard deviations for a large sample of first year psychology students. Comparisons between the scores obtained by the current sample and Roger et al. showed no significant differences in the use of Rational or Detached coping strategies by either males or females across the three assessment occasions. Comparison of the scores reported by the males in the current sample and Roger et al. showed no significant differences in the use of Emotional Coping strategies on any assessment occasion. However, comparison between scores reported by the females indicated that the current sample utilized fewer emotionally focussed coping strategies across each of the assessment occasions than did first year female psychology students, Time One t (df = 62.09) = 2.88, p = .0054, Time Two t (df = 55.11) = 3.02, p = .0038 and Time Three t (df = 44.48) = 2.71, p = .0096.

Finally, comparisons between the scores obtained by males in the current sample and those reported by Roger et al (1993) on the Avoidant coping scale showed no significant differences in the in the use of these coping strategies on any occasion. Again, the females in the current sample demonstrated significantly lower scores than the sample group on each of the three assessment occasions, Time One t (df = 73.82) = 5.49, p <0.0001, Time Two t (df = 56.22) = 3.60, p = 0.0007 and Time Three t (df = 48.09) = 4.34, p < 0.0001. These results suggest that the males and females in this sample reported utilizing rational and detached coping strategies in a similar fashion to first year psychology students. It would appear however, that females within the current sample reported less reliance on emotional and avoidant coping strategies than did their junior academic colleagues.

In order to examine the proportion of students in this sample that may be over relying on maladaptive coping strategies, CSQ raw scores were converted to T scores (X=50, SD=10). T Scores within the following ranges were assigned labels: <30 = very low, 31-40 = low, 41-59 = average, 60-69 = high and 70+ = very high. Results are reported in Table 3 and again suggest a subgroup of students reporting use of coping strategies in the extreme ranges across the three assessment occasions.

(insert Table 3 here)

NEO-PI-R. Independent sample t tests were conducted to compare the results obtained by the current sample on the NEO-PI-R on each of the three assessment occasions, to those obtained in the US general population survey reported by Costa and McCrae (1992). Significant differences were found between the two groups on the Neuroticism, Openness to Experience and Conscientiousness scales. That is, the current sample demonstrated significantly higher levels of Neuroticism on each assessment occasion, Time One t (df = 62.88) = 4.70, p < 0.0001, Time Two t (df = 56.08) = 4.33, p < 0.0001, and Time Three t (df = 38.10) = 4.12, p = 0.0002, and significantly higher levels of Openness to Experience, Time One

t (*df* = 64.81) = 4.33, *p* < 0.0001, Time Two *t* (*df* = 57.10) = 3.79, p = 0.0004, and Time Three *t* (*df* = 38.42) = 4.15, *p* = 0.0002. Finally, the current sample also demonstrated significantly lower Conscientiousness scores on the first two of the assessment occasions, Time One *t* (*df* = 63.33) = 2.61, *p* = 0.0113 and Time Two *t* (*df* = 56.80) = 3.23, p = 0.002. No significant differences were found between the current sample and the normal population sample on measures of Extraversion or Agreeableness on any assessment occasion.

When the significantly different mean scores obtained by the current sample were compared to scores obtained by US College students (Costa & McCrae, 1992) results were comparable. That is, no significant differences were found between scores on the Neuroticism, Openness to Experience or Conscientiousness scales on any assessment occasion, suggesting that as a group the current sample demonstrate personality structures within the range commonly exhibited by adults and university students. However, to also explore the possibility of a subgroup exhibiting responses in the problematic range on the NEO-PI-R, raw scores were converted to T scores (X=50, SD=10), and individuals were placed within categories according to these scores. Results are reported in Table 4 and again suggest a subgroup of students demonstrating responses in the extreme ranges across each of the assessment occasions.

(insert Table 4 here)

Data were examined at the level of the individual student. Seventeen students accounted for all responses within the clinical range on the three questionnaires employed. Seven of these students endorsed responses in the clinical range on more than one questionnaire, suggesting the possibility of psychological distress across multiple domains of functioning. Further, having endorsed responses in the clinical range on at least one questionnaire, eight students reported responses in the clinical range on at least one subsequent assessment occasion, suggesting ongoing psychological distress.

Relationship between psychological functioning and competence development

Multiple Regression analyses were employed to examine the potential relationship between predictor and criterion variables, however prior to conducting these analyses the applicability of this form of statistical analysis was considered. Stevens' (2002) suggestion regarding ratio of cases to independent variables was accepted, and two predictor variables were selected, being the DASS-Depression and NEO-PI-R Conscientiousness scales. For all regression equations scatter plots and partial regression plots were created to check the assumption of linearity between the criterion variable of CSAT performance and each of the predictor variables. Visual inspection suggested that the criterion variables were linearly related to each of the predictor variables, with no potential outliers or influential observations. Visual inspection of plots of the standardized residuals by the regression standardized predicted value indicated homoscedasticity, while independence of observations/independence of residuals was confirmed by examination of the Durban-Watson statistic for each multiple regression equation, with all ranging in value between 1.8 – 2.3 indicating that the data did not show serial correlation amongst the residuals. An inspection of correlation coefficients and Tolerance/Variance Inflation Factor (VIF) values indicated that the data did not show multicollinearity. Normality of residuals was assessed with visual inspection of the histograms and normal probability plots. Normal P-P plots of the residuals indicated all points close to the diagonal lines and studentized residual plots showed random scatters of points with constant variability and no definite outliers. Therefore, all assumptions were considered to have been met, and the data was subjected to multiple regression analyses.

A standard multiple regression analysis was performed between the two predictor variables of the Time One DASS-Depression, and the NEO-PI-R Conscientiousness subscales, and the Time Two mid-placement review CSAT scores as the criterion variable, employing the forced entry method. Results indicate that the combination of Time One DASS-Depression and

NEO-PI-R Conscientiousness subscale scores did not significantly predict Time Two CSAT scores obtained at mid placement review, $F = (2,54) = 1.33$, $p = ns$.

A standard multiple regression was performed between the Time One predictor variables of the DASS-Depression, and NEO-PI-R Conscientiousness subscales and Time Three final placement review CSAT score as the criterion variable, again employing the forced entry method. On this occasion R was significantly different from zero, $F = (2, 39) = 7.24$, $p = .002$. The combination of scores on the Time One DASS-Depression and NEO-PI-R Conscientiousness subscales significantly predicted Time Three CSAT scores. The multiple correlation coefficient was .52, indicating that together, scores on the DASS-Depression, and NEO-PI-R Conscientiousness subscales accounted for 27% of the variance in performance on the CSAT at the final placement review (Adjusted $R^2 = .23$). Scores on the DASS-D subscale were negatively related to results on the CSAT, while scores on the NEO-PI-R Conscientiousness subscale were positively related to results on the CSAT.

A standard multiple regression analysis was performed between the Time Two predictor variables of the DASS-Depression, and NEO-PI-R Conscientiousness subscales and Time Two mid- placement review CSAT score as the criterion variable, again employing the forced entry method. On this occasion, the combination of scores on the Time Two DASS-Depression and NEO-PI-R Conscientiousness subscales significantly predicted Time Two CSAT scores, $F = (2,50) = 3.77$, $p = .03$. The multiple correlation coefficient was .36, indicating that together, Time Two scores on the DASS-Depression, and NEO-PI-R Conscientiousness subscales accounted for 13% of the variance in performance on the CSAT at the mid placement review (Adjusted $R^2 = .10$). Scores on the Time Two DASS-D subscale did not significantly independently contribute to the prediction equation, while scores on the NEO-PI-R Conscientiousness subscale were positively related to results on the CSAT.

A standard multiple regression was performed between the Time Two predictor variables of the DASS-Depression, and NEO-PI-R Conscientiousness subscales and Time Three final placement review CSAT score as the criterion variable, again employing the forced entry method. On this occasion, the combination of scores on the Time Two DASS-Depression and NEO-PI-R Conscientiousness subscales significantly predicted Time Three CSAT scores, $F = (2,37) = 7.31$, $p = .002$. The multiple correlation coefficient was .53, indicating that together, Time Two scores on the DASS-Depression, and NEO-PI-R Conscientiousness subscales accounted for 28% of the variance in performance on the CSAT at the final placement review (Adjusted $R^2 = .24$). Scores on the Time Two DASS-D were negative predictors of performance, while scores on the NEO-PI-R Conscientiousness subscale were positively related to results on the CSAT.

A standard multiple regression was performed between the Time Three predictor variables of the DASS-Depression, and NEO-PI-R Conscientiousness subscales and Time Three final placement review CSAT score as the criterion variable, again employing the forced entry method. On this occasion, the combination of scores on the Time Three DASS-Depression and NEO-PI-R Conscientiousness subscales significantly predicted Time Three CSAT scores, $F = (2,34) = 5.02$, $p = .01$. The multiple correlation coefficient was .48, indicating that together, Time Three scores on the DASS-Depression, and NEO-PI-R Conscientiousness subscales accounted for 23% of the variance in performance on the CSAT at the final placement review (Adjusted $R^2 = .18$). Scores on the Time Three DASS-D subscale were negative predictors of performance, while scores on the NEO-PI-R Conscientiousness subscale did not contribute independently to the prediction equation.

It would appear then levels of depression and conscientiousness contribute to the prediction of a student's ability to develop the competence necessary to successfully complete the 42 week placement described in the current study. The strongest predictors of performance

occurred when both depression and conscientiousness scores contributed uniquely to the model's ability to predict performance, and this occurred at Time One and Two, when DASS-Depression and NEO-PI-R Conscientiousness scores predicted approximately one third of the variance in final placement review performance.

Finally, students who completed the final placement review (n = 43) were allocated to one of two groups: 0 = no responses on any measure within the clinical range or 1 = at least one response on any measure within the clinical range. An independent sample t tests was conducted to compare the CSAT results obtained by both groups. A significant difference was found between the two groups, t (df = 41) = 3.39, p = .0012, indicating that scores obtained by the clinical range group (CSAT scores M = 25.56, SD = 7.16) were significantly lower than those obtained by the non-clinical group (CSAT scores M = 32.63, SD = 6.28). It would appear that endorsing responses within the clinical range on any of the measures administered in this study placed students at risk of significantly poorer performance during their final clinical assessment period.

Discussion

The current research aimed to determine the psychological functioning of students enrolled in postgraduate degrees of Clinical and Forensic Psychology, and to explore the role of these factors in the development of the clinical competence while participating in the first of a series of required clinical placements. Results revealed that *as a group* the current sample described psychological functioning within the ranges commonly reported by normal adults and other university students. Specifically, the current sample reported responses within the normal range for depression and anxiety, and on the personality factors of Extraversion and Agreeableness. Responses on measures of stress, Neuroticism, Openness to Experience and Conscientiousness, Rational and Detached coping styles, were comparable to first year

university students. However as a group, females in the current sample, demonstrated less reliance on emotional and avoidant coping strategies than their junior female counterparts.

Interestingly, data analysis revealed the existence of a *subgroup* of students. That is, 27% of the students who participated in this study endorsed responses in the clinical or problematic range on at least one questionnaire on at least one occasion across the data collection periods. Approximately 40% of this subgroup endorsed responses in the clinical range on more than one questionnaire, with almost half of this group again reporting that these difficulties extended for substantial periods throughout the clinical placement. These findings suggest not only a significant subgroup of students experienced psychological distress during participation in the placement, but that problem co-morbidity and/or chronicity were common. These results appear largely consistent with the findings of a small number of similar studies, with estimates of significant psychological distress amongst postgraduate psychology students ranging between 25% to 59% (Brook, Holttum & Lavender, 2002; Cushway, 1992; Kumary & Baker, 2008; Kuyken, Peters, Power & Lavender, 1998), and persisting for a significant duration of the postgraduate programme (Kuyken, Peters, Power, Lavender & Rabe-Heskethh, 2000).

When the performance of those students who had endorsed responses in the clinical range on any questionnaire was compared to those whose scores did not, CSAT performance of those students was found to be significantly poorer than their colleagues. This suggests that performance in the clinical range on even one questionnaire reduces student ability to acquire and demonstrate the required competencies. In addition, depression negatively predicted, and conscientiousness positively predicted competence attainment. Again, these results appear consistent with a large body of literature exploring the relationship between mood and personality, and academic and profession functioning (Barrick, Mount & Judge, 2001; Owens et al, 2012; Poropat, 2009). Predictions were strongest when scores were considered at either

commencement of the clinical placement, or at the mid placement assessment, in relation to demonstration of competence at the final assessment period. Here, levels of depression and conscientiousness together accounted for almost 30% of the variance in performance.

Anecdotally, discussion of the current findings by supervisory staff revealed that the majority of the students endorsing responses in the clinical ranges had been of concern to supervisors at some point in the clinical placement. Some students had presented as quite obviously experiencing significant psychological distress, with a number electing to discuss the matter with their supervisors, who assisted by implementing appropriate management plans designed to assist students to meet the requirements of the placement. At other times, supervisors observed students' demeanour and slower rates of competence development and surmised the experience of psychological distress, providing additional supervisory input as necessary. Of greater concern however, was the small number of students endorsing responses in the clinical ranges that had not been apparent to supervisory staff, suggesting the experience of significant psychological distress invisible to supervisors who were highly experienced clinicians.

The findings of the current study must be viewed with caution. The current sample size is relatively small, and the study was set within the context of a single university in the suburbs of Sydney, Australia. The extent to which the current sample, and indeed the university itself, are representative of postgraduate students studying professional psychology elsewhere remains to be seen. Replication of this study within postgraduate degrees at other Australian universities will increase confidence in the generalisability of the current findings.

Nonetheless, placement within a postgraduate psychology programme is a limited resource, and the importance of predicting those students who might benefit from access to such training is significant. While there is currently no evidence regarding the psychological profile of the individual best suited to work as a professional psychologist, refusing entry on the

basis of current or prior history of significant psychological distress or impairment appears unscientific, unethical and impractical. The prevalence of significant psychological distress within the general population would suggest that, rather than employing the current findings as justification to deny entry to prospective students who are experiencing for example, a mood disorder or impaired levels of conscientiousness, research might best be directed towards investigating strategies aimed at increasing self-reflection, and enhancing both self-awareness and self-care amongst the postgraduate student population. Further, once commencement of postgraduate study has occurred, supporting students through an intensive educational process to gain maximum benefit from that process is vitally important. Finally, awareness of rates of psychological distress amongst the postgraduate student population, with potential consequences for competence development, may alert academics to the likelihood of the need to engage in potentially difficult conversations with students who may be exhibiting signs of psychological distress, or demonstrating problems in the development of the required professional competencies. On the basis of our results, and for the benefit of students and their clients alike, these conversations might best take place immediately after signs of psychological distress occur.

References

Adler, D. A., McLaughlin, T. J., Rogers, W. H., Chang, H., Lapitsky, L., & Lerner, D. (2006). Job performance deficits due to depression. *American Journal of Psychiatry*, *163*(9), 1569-1576. doi: 10.1176/appi.ajp.163.9.1569

Akgun, S., & Ciarrochi, J. (2003). Learned resourcefulness moderates the relationship between academic stress and academic performance. *Educational Psychology*, *23*(3), 287-294. doi: 10.1080/0144341032000060129

Barrick, M., & Mount, M. (1991). The Big Five Personality Dimensions and Job Performance: A Meta-Analysis. *Personnel Psychology*, *44*(1), 1.

Barrick, M., Mount, M., & Judge, T. (2001). Personality and Performance at the Beginning of the New Millennium: What Do We Know and Where Do We Go Next? *International Journal of Selection and Assessment*, *9*(1-2), 9-30. doi: 10.1111/1468-2389.00160

Brooks, J., Holttum, S., & Lavender, A. (2002). Personality style, psychological adaptation and expectations of trainee clinical psychologists. *Clinical Psychology & Psychotherapy*, *9*(4), 253-270. doi: 10.1002/cpp.318

Brown, T., Chorpita, B., Korotitsch, W., & Barlow, D. (1997). Psychometric properties of the Depression Anxiety Stress Scales (DASS) in clinical samples. *Behaviour Research and Therapy*, *35*(1), 79-89. doi: http://dx.doi.org/10.1016/S0005-7967(96)00068-X

Chamorro-Premuzic, T., & Furnham, A. (2003). Personality predicts academic performance: Evidence from two longitudinal university samples. *Journal of Research in Personality*, *37*(4), 319-338. doi: 10.1016/S0092-6566(02)00578-0

Conard, M. (2006). Aptitude is not enough: How personality and behavior predict academic performance. *Journal of Research in Personality*, *40*(3), 339-346. doi:10.1016/j.jrp.2004.10.003

Costa, P., & McCrae, R. (1992). Neo PI-R professional manual. *Odessa, FL: Psychological Assessment Resources, 396*, 653-665

Crawford, J., Cayley, C., Lovibond, P., Wilson, P., & Hartley, C. (2011). Percentile Norms and Accompanying Interval Estimates from an Australian General Adult Population Sample for Self-Report Mood Scales (BAI, BDI, CRSD, CES-D, DASS, DASS-21, STAI-X, STAI-Y, SRDS, and SRAS). *Australian Psychologist, 46*(1), 3-14. doi: 10.1111/j.1742-9544.2010.00003.x

Crawford, J., & Henry, J. (2003). The Depression Anxiety Stress Scales (DASS): Normative data and latent structure in a large non-clinical sample. *The British Journal of Clinical Psychology, 42*, 111-131. DOI: 10.1348/014466503321903544

Cushway, D. (1992). Stress in clinical psychology trainees. *British Journal of Clinical Psychology, 31 (Pt 2)*, 169-179. doi: 10.1111/j.2044-8260.1992.tb00981.

Doherty, E. M., & Nugent, E. (2011). Personality factors and medical training: a review of the literature. *Medical education*, *45*(2), 132-140. doi:10.1111/j.1365-2923.2010.03760

Dyrbye, L., Thomas, M., & Shanafelt, T. (2005). Medical Student Distress: Causes, Consequences, and Proposed Solutions. *Mayo Clinic Proceedings, 80*(12), 1613-1622. Document URL http://search.proquest.com.ezproxy.csu.edu.au/docview/216864983?accountid=10344

El-Ghoroury, N. H., Galper, D. I., Sawaqdeh, A., & Bufka, L. F. (2012). Stress, coping, and barriers to wellness among psychology graduate students. *Training and Education in Professional Psychology*, *6*(2), 122. DOI: 10.1037/a0028768

Eysenck, H. (1968). *Eysenck personality inventory*: Educational and Industrial Testing Service San Diego, Calif.

Furnham, A., Chamorro-Premuzic, T., & McDougall, F. (2002). Personality, cognitive ability, and beliefs about intelligence as predictors of academic performance. *Learning and Individual Differences, 14*(1), 47-64. doi:10.1016/j.lindif.2003.08.002

Haight, S. J., Chibnall, J. T., Schindler, D. L., & Slavin, S. J. (2012). Associations of medical student personality and health/wellness characteristics with their medical school performance across the curriculum. *Academic Medicine, 87*(4), 476-485. doi: 10.10971ACM.obo13e318248e9d0

Humphreys, L., Crino, R., Wilson, I & Hannan, T (2015). A preliminary analysis of a competence assessment tool for postgraduate training programmes in Clinical and Forensic psychology. *Clinical Psychologist.* doi: 10.1111/cp.12080

Kumary, A., & Baker, M. (2008). Stresses reported by UK trainee counselling psychologists. *Counselling Psychology Quarterly*, *21*(1), 19-28. doi: 10.1080/09515070801895626

Kuncel, N. R., Hezlett, S. A., & Ones, D. S. (2001). A comprehensive meta-analysis of the predictive validity of the graduate record examinations: implications for graduate student selection and performance. *Psychological bulletin*, *127*(1), 162 doi: 10.1037/ 0033-2909.127.1.162

Kuyken, W., Peters, E., Power, M., & Lavender, T. (1998). The psychological adaptation of psychologists in clinical training: the role of cognition, coping and social support. *Clinical Psychology & Psychotherapy, 5*(4), 238-252. doi: 10.1002/(sici)1099-0879(199812)5:4<238::aid-cpp160>3.0.co;2-w

Kuyken, W., Peters, E., Power, M., Lavender, T., & Rabe-Hesketh, S. (2000). A longitudinal study of the psychological adaptation of trainee clinical psychologists. *Clinical Psychology & Psychotherapy, 7*(5), 394-400. doi: 10.1002/1099-0879(200011)7:5<394::aid-cpp268>3.0.co;2-o

Lievens, F., Ones, D. S., & Dilchert, S. (2009). Personality scale validities increase throughout medical school. *Journal of Applied Psychology, 94*(6), 1514. http://dx.doi.org/10.1037/a0016137

Lovibond, S., & Lovibond, P. (1995). *Manual for the Depression Anxiety Stress Scale*. Sydney: The Psychological Foundation of Australia, Inc.

McCrae, R., & Costa, P. (1986). Personality, coping, and coping effectiveness in an adult sample. *Journal of personality, 54*(2), 385-404

Mosley Jr, T. H., Perrin, S. G., Neral, S. M., Dubbert, P. M., Grothues, C. A., & Pinto, B. M. (1994). Stress, coping, and well-being among third-year medical students. *Academic Medicine, 69*(9), 765-7. doi: 10.1177/0972063414526124

Owens, M., Stevenson, J., Hadwin, J., & Norgate, R. (2012). Anxiety and depression in academic performance: An exploration of the mediating factors of worry and working memory. *School Psychology International, 33*(4), 433-449. doi: 10.1177/0143034311427433

Peluso, D., Carleton, R. & Asmundson, G. (2011). Depression symptoms in Canadian psychology graduate students: Do research productivity, funding, and the academic advisory relationship play a role? *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement, 43*(2), 119. doi: 1037/a0022624

Poropat, A. (2009). A meta-analysis of the five-factor model of personality and academic performance. *Psychological Bulletin, 135*(2), 322-338. doi: 10.1037/a0014996

Roger, D., Jarvis, G., & Najarian, B. (1993). Detachment and coping: The construction and validation of a new scale for measuring coping strategies. *Personality and Individual Differences, 15*(6), 619-626. doi:10.1016/0191-8869(93)90003-L

Seipp, B. (1991). Anxiety and academic performance: A meta-analysis of findings. *Anxiety Research, 4*(1), 27-41. doi: 10.1080/08917779108248762

Spielberger, C. (1986). *Preliminary manual for the state-trait personality inventory (STPI)*: Select Press.

Stevens, J. (2002). *Applied multivariate statistics for the social sciences*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Tabachnick, B., & Fidell, L. (2007). *Experimental designs using ANOVA*: Thomson/Brooks/Cole.

Thomas, M., Dyrbye, L., Huntington, J., Lawson, K., Novotny, P., & Shanafelt, T. (2007). How do distress and well-being relate to medical student empathy? A multicenter study. *Journal of general internal medicine, 22*(2), 177-183. Doi:10.007/s11606-006-0039.6

Table 1

Descriptive Statistics: DASS, NEO-PI-R and CSQ

Measure	Time One (n = 59) Males=13, Females=46 *M (SD)*	Time Two (n = 53) Males=11, Females=42 *M (SD)*	Time Three (n = 37) Males=5, Females=32 *M (SD)*
DASS-Depression	5.08(5.45)	4.96(5.95)	4.92(6.44)
DASS-Anxiety	4.61(5.01)	4.19(5.89)	3.41(4.13)
DASS-Stress	11.83(9.26)	10.74(6.90)	11.51(8.40)
NEO-PI-R Neuroticism	94.93(25.34)	94.17(24.84)	95.62(24.04)
NEO-PI-R Extraversion	110.47(21.18)	110.38(20.69)	112.08(20.04)
NEO-PI-R Openness	120.78(17.57)	120.28(18.18)	123.30(18.30)
NEO-PI-R Agreeableness	126.83(15.22)	125.28(12.94)	128.49(13.68)
NEO-PI-R Conscientiousness	116.10(20.16)	114.45(19.06)	118.19(21.44)
CSQ-Rational Males	24.50(6.40)	27.00(9.04)	23.80(6.49)
CSQ-Rational Females	25.81(6.62)	25.33(7.15)	23.58(6.64)
CSQ-Rational Total	25.54(6.54)	25.64(7.47)	23.61(6.53)
CSQ-Detached Males	17.92(6.42)	19.50(7.27)	16.80(3.11)
CSQ-Detached Females	15.51(6.72)	16.02(6.74)	15.55(6.07)
CSQ-Detached Total	16.00(6.68)	16.68(6.91)	15.72(6.99)
CSQ-Emotional Males	13.67(5.42)	13.10(4.79)	14.00(3.80)
CSQ-Emotional Females	16.04(5.93)	15.81(6.08)	15.68(6.07)
CSQ-Emotional Total	15.56(5.86)	15.30(5.92)	15.44(5.80)
CSQ-Avoidant Males	13.08(4.46)	12.70(3.46)	10.20(3.70)
CSQ-Avoidant Females	11.98(4.10)	12.65(5.15)	12.16(4.50)
CSQ-Avoidant Total	12.20(4.13)	12.66(4.85)	11.89(4.41)

Table 2.

DASS responses: Percentage of current sample within descriptive ranges

Severity ratings	Time One (*n* = 59) *n* (%)	Time Two (*n* = 53) *n* (%)	Time Three (*n* = 37) *n* (%)
Depression - Normal	50 (85%)	44 (84%)	31 (84%)
Mild	3 (5%)	4 (7%)	2 (5%)
Moderate	4 (7%)	2 (4%)	2 (5%)
Severe	1 (2%)	2 (4%)	1 (3%)
Extremely Severe	1 (2%)	1 (2%)	1 (3%)
Anxiety - Normal	46 (78%)	44 (83%)	31 (84%)
Mild	5 (8%)	2 (4%)	3 (8%)
Moderate	4 (7%)	3 (6%)	2 (4%)
Severe	3 (5%)	1 (2%)	1 (3%)
Extremely Severe	1 (2%)	3 (6%)	0 (0%)
Stress - Normal	40 (68%)	40 (75%)	24 (65%)
Mild	7 (12%)	6 (11%)	5 (14%)
Moderate	6 (10%)	5 (9%)	4 (11%)
Severe	4 (7%)	2 (4%)	4 (11%)
Extremely Severe	2 (3%)	0 (0%)	0 (0%)

Table 3

Percentage of Current Sample Falling within T Score Categories for CSQ

Severity ratings	Time One (*n* = 59) *n* (%)	Time Two (*n* = 53) *n* (%)	Time Three (*n* = 37) *n* (%)
Rational Adaptive			
Very Low	2(3%)	1(2%)	0
Low	8(14%)	10(17%)	6(17%)
Average	40(68%)	32(60%)	25(69%)
High	9(15%)	10(19%)	4(11%)
Very High	0	0	1(3%)
Detached Adaptive			
Very Low	0	1(2%)	0
Low	12(20%)	9(7%)	7(19%)
Average	34(58%)	32(60%)	24(67%)
High	13(22%)	9(17%)	3(8%)
Very High	O	2(4%)	2(6%)
Emotional Maladaptive			
Very Low	0	0	0
Low	11(19%)	7(13%)	8(22%)
Average	37(63%)	37(70%)	25(69%)
High	10(17%)	7(13%)	1(3%)
Very High	1(2%)	2(4%)	2(6%)
Avoidant Maladaptive			
Very Low	0	0	0
Low	9(15%)	11(21%)	8(22%)
Average	42(71%)	34(64%)	23(64%)
High	6(10%)	6(11%)	4(11%)
Very High	2(3%)	2(4%)	1(3%)

Table 4

Percentage of Current Sample Falling within NEO-PI-R T score categories

Severity Ratings	Time One (*n* = 59) *n* (%)	Time Two (*n* = 53) *n* (%)	Time Three (*n* = 37) *n* (%)
Neuroticism			
< 30 Very Low	2(3%)	1(2%)	1(3%)
31-40 Low	10(17%)	10(19%)	5(14%)
41-59 Average	37(46%)	32(60%)	26(70%)
60-69 High	9(15%)	8(15%)	4(11%)
70> Very High	1(2%)	2(4%)	1(3%)
Extraversion			
< 30 Very Low	3(5%)	2(4%)	1(3%)
31-40 Low	8(14%)	7(13%)	5(14%)
41-59 Average	38(64%)	35(66%)	25(68%)
60-69 High	10(17%)	8(15%)	5(14%)
70> Very High	0	1(2%)	1(3%)
Openness to Exp.			
< 30 Very Low	0	0	1(3%)
31-40 Low	13(22%)	9(17%)	5(14%)
41-59 Average	35(59%)	34(64%)	24(65%)
60-69 High	8(14%)	8(15%)	6(16%)
70> Very High	3(5%)	2(4%)	1(3%)
Agreeableness			
< 30 Very Low	1(2%)	2(4%)	1(3%)
31-40 Low	12(20%)	6(11%)	4(11%)
41-59 Average	40(68%)	39(74%)	27(73%)
60-69 High	4(7%)	4(8%)	5(14%)
70> Very High	2(3%)	2(4%)	0
Conscientiousness			
< 30 Very Low	3(5%)	1(2%)	1(3%)
31-40 Low	9(15%)	9(17%)	6(16%)
41-59 Average	40(68%)	34(64%)	26(70%)
60-69 High	6(10%)	7(13%)	4(11%)
70> Very High	1(2%)	2(4%)	0